

# FACT SHEET

## BASIC DATA UNIT FIELD SERVICES SECTION HYDROLOGY DIVISION



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## WHAT IS THE BASIC DATA UNIT?

The Basic Data Unit (BDU) is the primary source of groundwater data for the Arizona Department Of Water Resources (ADWR). BDU is comprised of hydrologists and water resources specialists whose shared objective is to collect groundwater level data from wells and conduct well inventories throughout the State of Arizona. This unit also collects stream flow and discharge data, provides field personnel for other ADWR departments, and produces a number of reports such as the Statewide Groundwater Level Change Open File Reports (OFR) and various Hydrologic Monitoring Reports (HMR). BDU visits approximately 1,800 index wells each year throughout Arizona and makes an intensive effort to collect additional groundwater levels in multiple groundwater basins and a minimum of one Active Management Area (AMA) each year.

Approximately 3,500 to 4,000 sites are visited each year by BDU. Data collected from those sites may be found online in the Groundwater Site Inventory (GWSI), which the Field Services Section maintains. All data are made available to the public in a timely manner.

### Basic Data Collecting Canal Discharge







## BASIC DATA UNIT HISTORY

ADWR was established in 1980. Before becoming an agency, ADWR was known as the Arizona Water Commission (a much smaller group), which was a part of the Arizona State Land Department. BDU has been the data collection branch of ADWR since the beginning. The unit was patterned after similar data collection units in the United States Geological Survey (USGS). ADWR adopted all data collection protocols from the USGS, including field inventories, water level measurement, water quality sampling and discharge measurement. This assured that the data ADWR collected would be compatible with all USGS historical data.

**Unused Observation Well (Below)**

# GROUNDWATER DATA COLLECTION

The primary type of hydrologic data collected by BDU are groundwater level data. Methods that BDU uses for groundwater level data collection include the following:

## DISCRETE METHODS

These data are collected using electric sounders or steel tapes that take discrete water level measurements for selected well sites at specified intervals (usually one measurement per year). These measurements are performed by trained ADWR staff.

## INDEX LINES

The index line is a group of approximately 1,800 wells visited by ADWR field staff annually, semiannually, or quarterly, and measured manually. Data that are recorded are uploaded into GWSI under an 'Index Book' designation. Index wells provide a consistent water level history for selected wells. Data for these wells are used to monitor groundwater levels in groundwater basins throughout the State, and provide a large set of data used in reports and groundwater models.

## BASIN SWEEPS

BDU conducts basin sweeps to measure water levels for all accessible wells within a specific basin or sub-basin. A basin sweep is an intensive effort to measure as many wells as necessary in order to provide a comprehensive picture of the groundwater system. For example, the Phoenix AMA contains several hundred wells measured every five years. The resulting water level data support a number of water management and hydrology programs, and are available to cities, consultants, other agencies, and the public.

## RECENT AND PAST ACTIVITIES

Annual index well measurements have been collected for the most recent field season. Basin sweeps for the AMAs are scheduled to be completed every five years. In the last five years the Santa Cruz AMA (2016), Tucson AMA (2016), Phoenix AMA (2017), and Prescott AMA (2017) have been measured. Other basins are completed as needed depending on available resources.





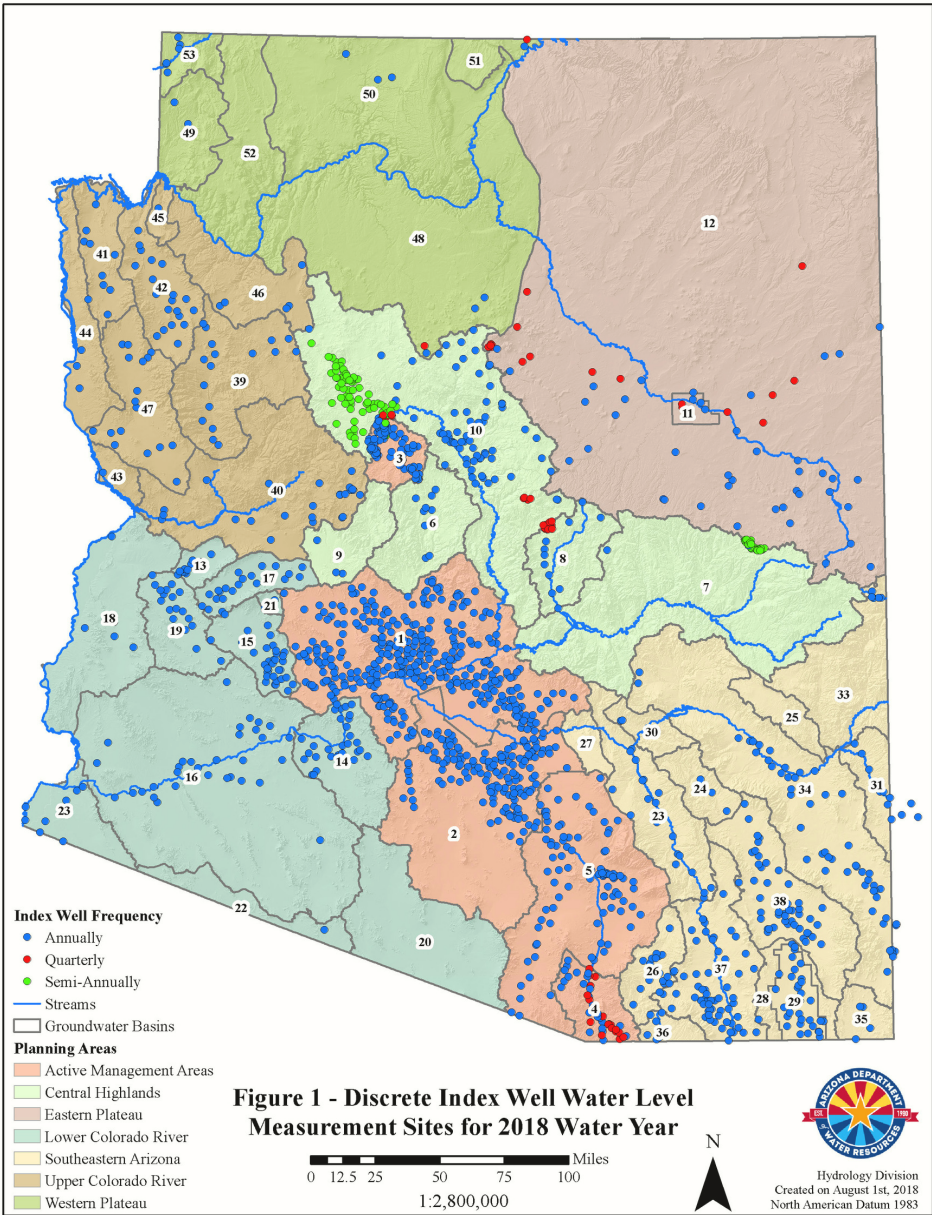
# GROUNDWATER SITE INVENTORY (GWSI)

Discrete Index Well Water Level Sites (2018) data from GWSI

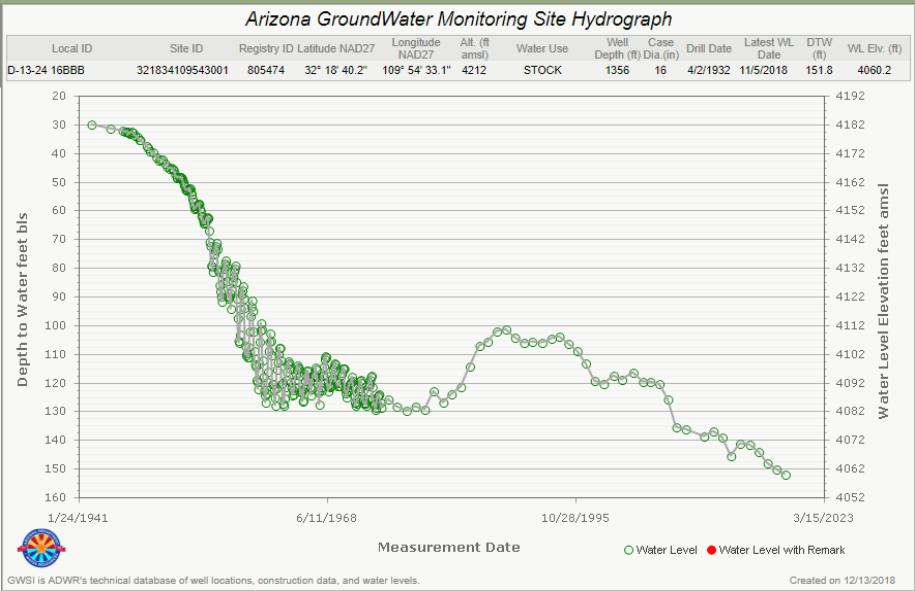
The Groundwater Site Inventory (GWSI) is a database ADWR utilizes to store and access site and groundwater data. GWSI is field-verified and contains approximately 45,000 sites; 43,915 of which are wells, 1,138 are springs, and 36 other sites. All sites have a minimum site criterion including cadastral, GPS location, and elevation. Current and historic water level measurements have been collected for 34,000 wells and stored in GWSI. Once the collected data are entered into GWSI, it undergoes a series of quality checks to ensure accuracy of the data. GWSI web allows any user to view site data, water levels, map viewer, and hydrographs online.

To access the GWSI database and view a current map showing all of ADWR's Index well monitoring sites visit us at:

<https://gisweb.azwater.gov/waterresources/data/GWSI.aspx>



## GWSI Web Hydrograph



## 3RD PARTY WATER LEVEL PORTAL

To foster collaboration and improve efficiency, ADWR is currently developing an online data submittal portal that will facilitate annual reporting by designated water providers, Community Water Systems (CWS), and permitted recharge facilities. Reported water level data are added to the GWSI database.

To learn more about the portal or become a data provider visit:  
<https://new.azwater.gov/hydrology/field-services/third-party-water-level-portal>



# WHAT DOES BASIC DATA DO WITH THE DATA?

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Staff from BDU conduct basin sweep investigations, measure all index wells statewide, and assist with the installation and maintenance of transducer sites. These data are added to the GWSI database and thereby made available throughout ADWR and to the public. BDU uses the information gathered from well measurements to develop water level maps and to support scientific planning and management studies of each basin's aquifer system. Data collected also support hydrologic studies such as groundwater modeling and water budget development.

We must all do our part to conserve and protect our most precious resource.



## WHO ELSE USES THE DATA?

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The data collected by BDU are used by many agencies and entities, within and outside of the Department, including:

- Arizona Department of Water Resources
- State and Federal Agencies
- Municipalities and Cities
- Power Providers
- Consultants
- Developers and Real Estate
- Universities and Students
- Farmers and Ranchers
- Well Drillers
- General Public



**A Well Site in Arizona**





# WHAT ARE THE DATA USED FOR?

- Resource management (especially critical in drought)
- Preparation of groundwater models (input and calibration)
- Map construction (depth to water, flow direction, water levels)
- Reports of hydrologic conditions throughout the State
- Development of annual water budgets
- Determination of assured water supply
- Growth and development planning (urban and rural)
- Location of areas of concern and monitor groundwater mining
- Development of hydrographs and water level trends

## *Protecting and Enhancing Arizona's Water Supplies for Current and Future Generations*

## WHERE TO GET DATA

Groundwater data collected by BDU are used to produce a variety of reports including Hydrologic Monitoring Reports (HMRs), which are used to provide the public with information on the progress made by the Hydrology Division in implementing a monitoring plan within the AMAs and other areas. HMRs present surface water, groundwater, pumpage, precipitation, recharge, and well information that has been compiled or developed by ADWR on a regular basis. BDU also produces an annual Statewide Groundwater Level Change Open File Report (OFR). OFRs are used for the presentation of information that is released to fill a public or informational need that is not defined in one of the other ADWR e-library series. These reports cover a wide variety of topics and may be presented in a variety of formats, detail, and scale within the State. These and other reports produced by the Hydrology Division are made available to the public on the Hydrology e-Library. For a comprehensive list of Hydrology's publications, visit us online at: <https://new.azwater.gov/hydrology/e-library>. The categorized list of reports, papers, and maps on the Hydrology e-Library are:

- Bulletins
- Fact Sheets
- Groundwater Monitoring Reports (GMR)
- Hydrologic Map Series (HMS)
- Hydrologic Monitoring Reports (HMR)
- Land Subsidence Monitoring Reports (LSMR)
- Land Subsidence Maps (LSM)
- Miscellaneous Publications
- Open-File Reports (OFR)
- Professional Papers
- Water Level Change Map Series (WLCMS)
- Story Maps

